

# Canadian Journal of Physics

Author Index  
Volume 88, 2010

- Abbas, Z., 635  
 Abd El-Aziz, M., 607  
 Abdel Wahid, T.Z., 501  
 Abourabia, A.M., 211, 501  
 abu Shayeb, M.K., 553  
 Abu-Bakr, A.F., 317  
 Ahmed, N., 663  
 Al-Badawi, A., 553  
 Al-Harbi, R.A., 529  
 Al-Khatib, A.M., 597  
 Al-Theeb, H.M., 479  
 Alba, D., 379, 425  
 Aleksanyan, A.G., 741  
 Ali, N., 635  
 Allam, S.H., 257  
 Anavekar, R.V., 513, 569  
 Anthoni, S.M., 885  
 Antimirova, T., 325  
 Arun Kumar, K.V., 493  
 Asghar, S., 911  
 Awad, E.S., 307  
 Awasthi, Aashees, 283  
 Awasthi, Anjali, 283  
 Barmaki, S., 1  
 Batarfi, H.A., 529  
 Berdekas, D., 645  
 Bichler, L., 715  
 Bihari, C., 201  
 Bohdanowicz, Th., 751  
 Bouarmoud, M., 905  
 Bourassa, A.E., 919  
 Brown, R.J.C., 707  
 Buyers, W.J.L., 729  
 Cao, L.R., 751  
 Chand, F., 165  
 Chattopadhyay, S., 933  
 Cowley, R.A., 729  
 Crater, H.W., 379, 425  
 Dahn, J.R., 131  
 Das, A., 73, 93, 111  
 Das, R., 157, 651  
 De Vincenzo, S., 809  
 Deb, A., 651  
 Debnath, U., 933  
 Degenstein, D.A., 559, 919  
 Dhiman, S.K., 201  
 Dick, F., 149  
 DiRienzi, J., 877  
 Dobrowolski, T., 627  
 Dolukanyan, S.K., 741  
 Downing, R.G., 751  
 Drachman, R.J., 877  
 Dutta, S., 545  
 El-Karamany, A.S., 307  
 El-Sherbini, Th.M., 257

# Revue canadienne de physique

Index des auteurs  
Volume 88, 2010

- Eraiah, B., 513  
 Evans, M.J.B., 707  
 Ezzat, M.A., 35, 307  
 Fan, G.-L., 67  
 Fan, H.-Y., 349  
 Farajollahi, H., 939  
 Farrell, A., 817  
 Ferguson, P.P., 131  
 Fetecau, C., 675  
 Fetecau, Corina, 675  
 Frayne, R., 465  
 Fritzsche, H., 723  
 Fu, G., 9  
 Fu, H., 591  
 Gao, T., 591  
 García-Islas, J.M., 223  
 Gattinger, R.L., 559, 919  
 Gebremichael, B., 253  
 Ghosh, D., 651  
 Ghosh, M.K., 575  
 Goncharova, L.V., 751  
 Goodman, F.O., 365  
 Greenbaum, B., 271  
 Gupta, D.K., 201  
 Gupta, K.K., 201  
 Haagsma, J., 723  
 Halder, P.K., 575  
 Harrower, C.T., 723  
 Hassan, K.M., 211  
 Hassan, S.S., 529  
 Hayat, T., 911  
 He, P.-B., 9  
 Hendi, A.A., 911  
 Hirose, A., 247  
 Holden, T.M., 799  
 Huang, D., 927  
 Javed, T., 635  
 Jena, S.N., 517  
 Jia, J., 189  
 Jiang, X., 139  
 Julian, S.R., 701  
 Kalita, B.C., 157  
 Kalman, C.S., 325  
 Katsaras, J., 735  
 Kengne, E., 55  
 Khatun, H., 857  
 Kherouf, S., 657  
 Kučerka, N., 735  
 Kumar, A., 857  
 Kumar, N., 857  
 Kumar, R., 181  
 Lakhssassi, A., 55  
 Laulan, S., 1  
 Lauzon, M.L., 465  
 Li, L.-L., 301  
 Li, L.L., 49  
 Li, Q.-Y., 9  
 Li, S.-M., 277, 851  
 Li, Z.-D., 9  
 Liang, J., 899  
 Liu, W., 591  
 Liu, W.-K., 227  
 Liu, X., 899  
 Llewellyn, E.J., 559, 919  
 Lloyd, N.D., 919  
 Long, Z.J., 227  
 Luber, E., 723  
 Lusanna, L., 379, 425  
 Lv, J., 899  
 Ma, L., 139  
 Manna, S.K., 575  
 Mathew, S., 493  
 Maung Maung, K., 149  
 Mayilyan, D.G., 741  
 McCollam, A., 701  
 McDade, I.C., 919  
 McGregor, R.J., 759  
 Mehdian, H., 15  
 Milner-Bolotin, M., 325  
 Mitlin, D., 723  
 Mohammadein, S.A., 317  
 Mohapatra, P.K., 517  
 Mohazzabi, P., 271, 623  
 Moradi Marjaneh, A., 841  
 Mukhopadhyay, A., 575  
 Muni, H.H., 517  
 Nampoori, V.P.N., 493  
 Nawaz, M., 911  
 Nguyen-Ba, T., 55  
 Nie, C., 175  
 Nieh, M.-P., 735  
 Noël, J.J., 751  
 Norbury, J.W., 149  
 Norman, R.B., 149  
 Odeh, I.M., 597  
 Okoor, S., 597  
 Ophus, C., 723  
 Pal, K., 585  
 Pan, Y., 927  
 Panda, P., 517  
 Patitsas, A.J., 863  
 Perelomova, A., 29, 293  
 Poirier, E., 723  
 Prabhakaran, D., 729  
 Prakash, G., 617  
 Prakash, H., 181  
 Qi, D.-J., 277, 851  
 Raja, R., 885  
 Ramakrishnaiah, 513  
 Ravanpak, A., 939

- Ravindran, C., 715  
Rogge, R.B., 759  
Ru, H.-Q., 851  
Ryan, D.H., 771  
Sánchez, C., 809  
Saad, E.I., 689  
Sabati, M., 465  
Sadeghi, A., 333  
Saha, R., 651  
Sahlaoui, M., 905  
Sajid, M., 635  
Sakthivel, R., 885  
Sarmah, H.K., 157  
Saunders, R., 529  
Saviz, S., 15  
Sediako, D., 715  
Selima, E.S., 211  
Sepehri, A., 841  
Sharif, M., 833  
Sheese, P.E., 919  
Shekhtman, V.Sh., 741  
Shivaprakash, Y., 569  
Singh, G., 575  
Singh, U., 857
- Singh, Y., 201  
Sinha, A.K., 857  
Solomon, D., 137  
Song, W.-W., 9  
Stafford, R.B., 465  
Sudarsanakumar, C., 493  
Sun, H., 899  
Swainson, I.P., 701, 741  
Tang, S., 139  
Tawfik, A., 825  
Teffahi, H., 657  
Tessema, G., 253  
Thompson, R.I., 465  
Torabi, R., 641  
Tripathi, B.S., 283  
Tun, Z., 771, 751, 707  
Unnikrishnan, N.V., 493  
Vaillancourt, R., 55  
Vallance Jones, A., 559  
van Zyl, B.P., 817  
Varshney, A.K., 201  
Vieru, D., 675  
Vyas, V., 857  
Waheed, S., 833
- Wang, W.-M., 277  
Wang, X.-F., 301  
Weil, J.A., 947  
Wong, B.C.S., 947  
Wu, S.-Y., 301  
Wu, S.Y., 49  
Wu, W., 701  
Xu, P., 49  
Yamani, Z., 771, 729  
Yilbas, B.S., 479  
Yonkeu, A.L., 741  
Younis, W.O., 257  
Youssef, H.M., 35  
Yuan, H.-C., 349  
Zhang, Shuang-Xi, 349  
Zhang, Shan-Xiang, 301  
Zhang, S.X., 49  
Zhang, X.-Y., 67  
Zhang, Z., 139  
Zheng, Z., 139  
Zohoor, H., 333  
Zomorrodian, M.E., 841

# Canadian Journal of Physics

Subject Classification

Volume 88, 2010

Summary of the Physics and Astronomy Classification Scheme (PACS)<sup>®</sup>, as developed by the American Institute of Physics and used with its permission by the Canadian Journal of Physics. For a more detailed listing, see <http://publish.aps.org/PACS/>.

## 00.00 SUMMARY OF PACS SCHEME

- 01.00 Communication, education, history, and philosophy
- 02.00 Mathematical methods in physics
- 03.00 Quantum mechanics, field theories, and special relativity (see also section 11 General theory of fields and particles)
- 04.00 General relativity and gravitation (see also 95.30.Sf in astronomy). Special relativity, see 03.30.+p
- 05.00 Statistical physics, thermodynamics, and nonlinear dynamical systems (see also 02.50.-r Probability theory, stochastic processes, and statistics)
- 06.00 Metrology, measurements, and laboratory procedures (for laser applications in metrology, see 42.62.Eh)
- 07.00 Instruments, apparatus, and components common to several branches of physics and astronomy

## 10.00 THE PHYSICS OF ELEMENTARY PARTICLES AND FIELDS

- 11.00 General theory of fields and particles
- 12.00 Specific theories and interaction models; particle systematics
- 13.00 Specific reactions and phenomenology
- 14.00 Properties of specific particles

## 20.00 NUCLEAR PHYSICS

- 21.00 Nuclear structure
- 23.00 Radioactive decay and in-beam spectroscopy
- 24.00 Nuclear reactions: general
- 25.00 Nuclear reactions: specific reactions
- 26.00 Nuclear astrophysics
- 27.00 Properties of specific nuclei listed by mass ranges
- 28.00 Nuclear engineering and nuclear power studies
- 29.00 Experimental methods and instrumentation for elementary-particle and nuclear physics

## 30.00 ATOMIC AND MOLECULAR PHYSICS

- 31.00 Electronic structure of atoms and molecules: theory
- 32.00 Atomic properties and interactions with photons
- 33.00 Molecular properties and interactions with photons
- 34.00 Atomic and molecular collision processes and interactions
- 36.00 Exotic atoms and molecules; macromolecules; clusters
- 39.00 Instrumentation and techniques for atomic and molecular physics

## 40.00 ELECTROMAGNETISM, OPTICS, ACOUSTICS, HEAT TRANSFER, CLASSICAL MECHANICS, AND FLUID MECHANICS

- 41.00 Electromagnetism; electron and ion optics
- 42.00 Optics
- 43.00 Acoustics
- 44.00 Heat transfer

# Revue canadienne de physique

Classification thématique

Volume 88, 2010

Sommaire du plan de classification PACS<sup>®</sup> (Physics and Astronomy Classification Scheme) élaboré par le American Institute of Physics et utilisé avec sa permission par la Revue canadienne de physique. Pour plus de détails, rendez-vous au site <http://publish.aps.org/PACS/>.

- 45.00 Classical mechanics of discrete systems
- 46.00 Continuum mechanics of solids (see also 83.10.Ff in rheology)
- 47.00 Fluid dynamics

**50.00 PHYSICS OF GASES, PLASMAS, AND ELECTRIC DISCHARGES**

- 51.00 Physics of gases
- 52.00 Physics of plasmas and electric discharges

**60.00 CONDENSED MATTER: STRUCTURAL, MECHANICAL AND THERMAL PROPERTIES**

- 61.00 Structure of solids and liquids; crystallography
- 62.00 Mechanical and acoustical properties of condensed matter
- 63.00 Lattice dynamics
- 64.00 Equations of state, phase equilibria, and phase transitions
- 65.00 Thermal properties of condensed matter
- 66.00 Transport properties of condensed matter (nonelectronic)
- 67.00 Quantum fluids and solids; liquid and solid helium
- 68.00 Surfaces and interfaces; thin films and low-dimensional systems (structure and nonelectronic properties)

**70.00 CONDENSED MATTER: ELECTRONIC STRUCTURE, ELECTRICAL, MAGNETIC, AND OPTICAL PROPERTIES**

- 71.00 Electronic structure of bulk materials
- 72.00 Electronic transport in condensed matter
- 73.00 Electronic structure and electrical properties of surfaces, interfaces, thin films, and low-dimensional structures
- 74.00 Superconductivity
- 75.00 Magnetic properties and materials
- 76.00 Magnetic resonances and relaxations in condensed matter, Mössbauer effect
- 77.00 Dielectrics, piezoelectrics, and ferroelectrics and their properties
- 78.00 Optical properties, condensed-matter spectroscopy and other interactions of radiation and particles with condensed matter
- 79.00 Electron and ion emission by liquids and solids; impact phenomena

**80.00 INTERDISCIPLINARY PHYSICS AND RELATED AREAS OF SCIENCE AND TECHNOLOGY**

- 81.00 Materials science
- 82.00 Physical chemistry and chemical physics
- 83.00 Rheology
- 84.00 Electronics; radiowave and microwave technology; direct energy conversion and storage
- 85.00 Electronic and magnetic devices; microelectronics
- 87.00 Biological and medical physics
- 89.00 Other areas of applied and interdisciplinary physics

**90.00 GEOPHYSICS, ASTRONOMY, AND ASTROPHYSICS**

- 91.00 Solid Earth physics
- 92.00 Hydrospheric and atmospheric geophysics
- 93.00 Geophysical observations, instrumentation, and techniques
- 94.00 Aeronomy and magnetospheric physics
- 95.00 Fundamental astronomy and astrophysics; instrumentation, techniques, and astronomical observations
- 96.00 Solar System
- 97.00 Stars
- 98.00 Stellar systems; interstellar medium; galactic and extragalactic objects and systems; the Universe

# Canadian Journal of Physics

Contents  
Volume 88, 2010

# Revue canadienne de physique

Sommaire  
Volume 88, 2010

## January / Janvier

### ARTICLES / ARTICLES

|   |   |    |
|---|---|----|
| Samira Barmaki and Stéphane Laulan                                    | Multiphoton ionization of $H_2^+$ in the perturbative regime  | 1  |
| Qiu-Yan Li, Zai-Dong Li, Peng-Bin He, Wei-Wei Song, and Guangsheng Fu | Grey solitons and soliton interaction of higher nonlinear Schrödinger equation                                | 9  |
| S. Saviz and H. Mehdian   | Gain enhancement in two-stream electromagnetically pumped free electron laser with ion-channel guiding        | 15 |
| Anna Perelomova   | Control of mass concentration of reagents by sound in a gas with nonequilibrium chemical reactions            | 29 |
| Magdy A. Ezzat and Hamdy M. Youssef                                   | Stokes' first problem for an electro-conducting micropolar fluid with thermoelectric properties               | 35 |
| S.X. Zhang, S.Y. Wu, P. Xu, and L.L. Li                               | Theoretical investigations on the spin Hamiltonian parameters and the local structure for $Rh^{2+}$ in rutile | 49 |
| E. Kengne, A. Lakhssassi, T. Nguyen-Ba, and R. Vaillancourt           | Dispersive shock waves propagating in the cubic-quintic derivative nonlinear Schrödinger equation             | 55 |
| Xiao-Yan Zhang and Guo-Liang Fan                                      | Magnetopolaron effect on the $D^-$ center at the hetero-interface of III-V crystals                           | 67 |

Revista Mexicana De Fisica table of contents / Revista Mexicana De Física table des matières

RMF1

## February / Février

### ARTICLES / ARTICLES

|  |   |     |
|--|---|-----|
| A. Das   | Discrete phase space - I: Variational formalism for classical relativistic wave fields                              | 73  |
| A. Das   | Discrete phase space - II: The second quantization of free relativistic wave fields                                 | 93  |
| A. Das   | Discrete phase space - III: The divergence-free S-matrix elements   | 111 |
| P.P. Ferguson and J.R. Dahn  | Application of the "confusion principle" to Sn-based materials as negative electrode materials for Li-ion batteries | 131 |
| Dan Solomon  | An exact solution of the Dirac equation for a time-dependent Hamiltonian in 1-1 dimension space-time                | 137 |
| Shaoting Tang, Xin Jiang, Lili Ma, Zhanli Zhang, and Zhiming Zheng | On routing strategy with finite-capacity effect on scale-free networks  | 139 |

## March / Mars

### ARTICLES / ARTICLES

|   |   |     |
|---|---|-----|
| John W. Norbury, Frank Dick, Ryan B. Norman, and Khin Maung Maung                   | Cross-sections from scalar field theory   | 149 |
| B.C. Kalita, R. Das, and H.K. Sarmah  | Weakly relativistic effect in the formation of ion-acoustic solitary waves in a positive ion-beam plasma  | 157 |
| Fakir Chand   | Fourth-order constants of motion for time independent classical and quantum systems in three dimensions   | 165 |
| Chuanhui Nie  | Pressure derivative of the melting temperature for some alkali halides  | 175 |
| Rakesh Kumar and Hari Prakash   | Sub-Poissonian photon statistics of light in interaction of two-level atoms in superposed states with a single mode superposed coherent radiation | 181 |
| Junji Jia   | New spherically symmetric solutions in the Einstein-Yang-Mills-Higgs model  | 189 |
| Yuvraj Singh, Chhail Bihari, A.K. Varshney, S.K. Dhiman, K.K. Gupta, and D.K. Gupta | Ground and gamma band energy systematics in even xenon and barium nuclei  | 201 |
| A.M. Abourabia, K.M. Hassan, and E.S. Selima  | Painlevé analysis and new analytical solutions for compound KdV-Burgers equation with variable coefficients                                       | 211 |

## COMMENT / COMMENTAIRE

- J. Manuel García-Islas** Black-hole entropy in loop quantum gravity and number theory

223

**April / Avril**

## TUTORIAL / ARTICLE DIDACTIQUE

- Zi Jian Long and Wing-Ki Liu** Keldysh theory of strong-field ionization

227

## ARTICLES / ARTICLES

- A. Hirose** Radiation pressure on a dielectric surface

247

- Bizuneh Gebremichael and Genene Tessema** Hole transport parameters in a PTOPT based organic solar cell

253

- W.O. Younis, S.H. Allam, and Th. M. El-Sherbini** Rate coefficients for electron impact excitation, de-excitation and laser gain calculations of the excited ions Co(XVII) up to Br(XXV)

257

- Pirooz Mohazzabi and Ben Greenebaum** Phase-sensitive particle separation using alternating longitudinal electric field

271

- De-Jiang Qi, Wei-Min Wang, and Shuang-Mei Li** Fermion tunneling effect in Vaidya-de Sitter space

277

- Bhawana S. Tripathi, Anjali Awasthi, and Aashees Awasthi** Estimation of acoustic nonlinearity parameter and molecular characteristics of ternary liquid mixtures at different temperatures

283

- Anna Perelomova** Nonlinear generation of non-acoustic modes by low-frequency sound in a vibrationally relaxing gas

293

**May / Mai**

## ARTICLES / ARTICLES

- Xue-Feng Wang, Shao-Yi Wu, Li-Li Li, and Shan-Xiang Zhang** Investigations of the spin Hamiltonian parameters for the cubic Mn<sup>2+</sup> centers in ZnX (X = S, Se, Te) and CdTe

301

- Magdy A. Ezzat, Ahmed S. El-Karamany, and Emad S. Awad** On the coupled theory of thermo-piezoelectric/piezomagnetic materials with two temperatures

307

- S.A. Mohammadein and A.F. Abu-Bakr** The growth of vapour bubble in a superheated liquid between two phase turbulent flow

317

- Calvin S. Kalman, Marina Milner-Bolotin, and Tetyana Antimirova** Comparison of the effectiveness of collaborative groups and peer instruction in a large introductory physics course for science majors

325

- Ali Sadeghi and Hassan Zohoor** Nonlinear vibration of rectangular atomic force microscope cantilevers by considering the Hertzian contact theory

333

- Shuang-Xi Zhang, Hong-Chun Yuan, and Hong-Yi Fan** Higher order properties and Bell inequality violation for the three-mode enhanced squeezed state

349

- Frank O. Goodman** Surface light-induced drift, including number flux and heat flux, in flat-plate and circular-cylindrical geometries

365

**June / Juin**

## ARTICLES / ARTICLES

- David Alba, Horace W. Crater, and Luca Lusanna** Towards relativistic atomic physics. Part I. The rest-frame instant form of dynamics and a canonical transformation for a system of charged particles plus the electro-magnetic field

379

- David Alba, Horace W. Crater, and Luca Lusanna** Towards relativistic atomic physics. Part II. Collective and relative relativistic variables for a system of charged articles plus the electromagnetic field

425

Revista Mexicana De Física table of contents / Revista Mexicana De Física table des matières

RMF1

The African Physical Review table of contents / The African Physical Review table des matières

AFR1

**July / Juillet**

## TUTORIAL / ARTICLE DIDACTIQUE

- Randall B. Stafford, M. Louis Lauzon, Mohammad Sabati, Richard Frayne, and Robert I. Thompson** A tutorial on the precessional behaviour of hydrogen nuclei in external magnetic fields

465

## ARTICLES / ARTICLES

- Hind M. Al-Theeb and Bekir S. Yilbas** Analytical solution for electron and lattice site temperatures due to laser-induced non-equilibrium energy transport in metals

479

|  |   |     |
|--|---|-----|
| <b>Siby Mathew, K.V. Arun Kumar, C. Sudarsanakumar, V.P.N. Nampoori, and N.V. Unnikrishnan</b> | Local symmetry and Z-scan analysis of ZnSe/Eu <sup>3+</sup> doped sol-gel silica hosts                                      | 493 |
| <b>A.M. Abourabia and T.Z. Abdel Wahid</b>   | The unsteady Boltzmann kinetic equation and non-equilibrium thermodynamics of an electron gas for the Rayleigh flow problem | 501 |
| <b>B. Eraiah, Ramakrishnaiah, and R.V. Anavekar</b>  | Elastic properties of zinc-phosphate glasses doped with erbium trioxide   | 513 |
| <b>S.N. Jena, H.H. Muni, P.K. Mohapatra, and P. Panda</b>                                      | An independent-quark model calculation for radiative decay widths of mesons in static and beyond static approximation       | 517 |
| <b>H.A. Batarfi, R.A. Al-Harbi, R. Saunders, and S.S. Hassan</b>                               | Iterative solution of non-autonomous Bloch equations: fluorescence spectrum with detuned squeezed vacuum field              | 529 |

**August / Août**

## ARTICLES / ARTICLES

|   |  |     |
|---|--|-----|
| <b>Srimonti Dutta</b>   | Multifractal detrended fluctuation analysis of SENSEX fluctuation in the Indian stock market   | 545 |
| <b>A. Al-Badawi and M. Kheare abu Shayeb</b>                                  | Charged Dirac particle crossing a gravitational electromagnetic sandwich wave  | 553 |
| <b>R.L. Gattinger, A. Vallance Jones, D.A. Degenstein, and E.J. Llewellyn</b> | Quantitative spectroscopy of the aurora. VI. The auroral spectrum from 275 to 815 nm observed by the OSIRIS spectrograph on board the Odin spacecraft          | 559 |
| <b>Y. Shivaprakash and R.V. Anavekar</b>                                      | Investigations of lithium-chloro-borate glass-ceramic and its elastic properties   | 569 |
| <b>M.K. Ghosh, P.K. Haldar, S.K. Manna, A. Mukhopadhyay, and G. Singh</b>     | Intermittency and related issues in <sup>16</sup> O-Ag/Br collision at 200A GeV/c  | 575 |
| <b>Kausik Pal</b>   | Pionic contribution to relativistic Fermi liquid parameters  | 585 |
| <b>Hongzhi Fu, WenFang Liu, and Tao Gao</b>                                   | The first-order structural phase transition of YSb   | 591 |
| <b>Sondos Okoor, A.M. Al-Khateeb, and I.M. Odeh</b>                           | Longitudinal coupling impedance for particle beams with Gaussian charge distributions in the longitudinal and transverse directions                            | 597 |
| <b>Mohamed Abd El-Aziz</b>  | The effects of variable fluid properties and viscous dissipation on forced convection of viscoelastic liquids in a thin film over an unsteady stretching sheet | 607 |

## NOTE / NOTE

|                     |   |     |
|---------------------|---|-----|
| <b>Gyan Prakash</b> | Electric field emission of electrons from negatively charged spherical particles in a dusty plasma in the regime of nonlinear screening | 617 |
|---------------------|---|-----|

**September / Septembre**

## TUTORIAL / ARTICLE DIDACTIQUE

|                         |   |     |
|-------------------------|---|-----|
| <b>Pirooz Mohazzabi</b> | Falling and rising in a fluid with both linear and quadratic drag | 623 |
|-------------------------|---|-----|

## ARTICLES / ARTICLES

|  |  |     |
|--|--|-----|
| <b>T. Dobrowolski</b>                                  | The influence of curvature on kink creation in a long Josephson junction   | 627 |
| <b>M. Sajid, Z. Abbas, T. Javed, and N. Ali</b>        | Boundary layer flow of an Oldroyd-B fluid in the region of a stagnation point over a stretching sheet                  | 635 |
| <b>Reza Torabi</b>                                     | A quantum mechanical approach to the polarization transport of photons   | 641 |
| <b>D. Berdekas</b>                                     | Study of the Raman spectra of phonons in disordered GaSb/AlSb (001) superlattices                                      | 645 |
| <b>Dipak Ghosh, Argha Deb, Ruma Saha, and Rupa Das</b> | Target excitation dependence of degree of multifractality and critical exponent in ultrarelativistic nuclear collision | 651 |
| <b>H. Teffahi and S. Kherouf</b>                       | Effets du couplage source-conduit vocal sur le modèle à deux masses  | 657 |
| <b>N. Ahmed</b>  | MHD convection with Soret and Dufour effects in a three-dimensional flow past an infinite vertical porous plate        | 663 |
| <b>D. Vieru, Corina Fetecau, and C. Fetecau</b>        | Unsteady flow of a generalized Oldroyd-B fluid due to an infinite plate subject to a time-dependent shear stress       | 675 |
| <b>E.I. Saad</b>                                       | Translation and rotation of a porous spheroid in a spheroidal container  | 689 |

**October / Octobre**

## REVIEW / SYNTHÈSE

|                    |  |     |
|--------------------|--|-----|
| <b>T.M. Holden</b> | A Canadian perspective on engineering strain measurements by neutron diffraction | 799 |
|--------------------|--|-----|

## TUTORIAL / ARTICLE DIDACTIQUE

|   |  |     |
|---|--|-----|
| <b>Z. Yamani, Z. Tun, and D.H. Ryan</b> | Neutron scattering study of the classical antiferromagnet MnF <sub>2</sub> : a perfect hands-on neutron scattering teaching course | 771 |
|---|--|-----|

## ARTICLES / ARTICLES

|   |  |     |
|---|--|-----|
| Ian P. Swainson, Wenlong Wu, Alix McCollam, and Stephen R. Julian   | Non-collinear antiferromagnetism in FeCrAs   | 701 |
| R.J.C. Brown, M.J.B. Evans, and Z. Tun  | Neutron scattering study of adsorption in porous MCM-41 silica   | 707 |
| L. Bichler, C. Ravindran, and D. Sediako  | Ex situ measurement of strain associated with hot tearing in AZ91D and AE42 magnesium alloys using neutron diffraction       | 715 |
| H. Fritzsch, E. Poirier, J. Haagsma, C. Ophus, E. Luber, C.T. Harrower, and D. Mitlin                                     | A systematic neutron reflectometry study on hydrogen absorption in thin $Mg_{1-x}Al_x$ alloy films                           | 723 |
| Z. Yamani, W.J.L. Buyers, R.A. Cowley, and D. Prabhakaran   | Magnetic excitations of spin and orbital moments in cobalt oxide   | 729 |
| Mu-Ping Nieh, Norbert Kučerka, and John Katsaras  | Formation mechanism of self-assembled unilamellar vesicles   | 735 |
| Ian P. Swainson, Seda K. Dolukanyan, Anahit G. Aleksanyan, Veniamin Sh. Shekhtman, Davit G. Mayilyan, and André L. Yonkeu | Omega-phase in Ti-Hf-Zr alloys produced by the hydride-cycle method  | 741 |
| Z. Tun, J.J. Noël, Th. Bohdanowicz, L.R. Cao, R.G. Downing, and L.V. Goncharova   | Cold-neutron depth profiling as a research tool for the study of surface oxides on metals                                    | 751 |
| R.J. McGregor and R.B. Rogge  | Residual stress characterization of a fabrication weld from the VICTORIA-Class submarine pressure hull: revealing the Unseen | 759 |

Revista Mexicana De Física table of contents / Revista Mexicana De Física table des matières

RMF1

## November / Novembre

## TUTORIALS / ARTICLES DIDACTIQUE

|  |  |     |
|--|--|-----|
| Salvatore De Vincenzo and Carlet Sánchez | Point interactions: boundary conditions or potentials with the Dirac delta function          | 809 |
| Aaron Farrell and Brandon P. van Zyl     | s-wave scattering and the zero-range limit of the finite square well in arbitrary dimensions | 817 |

## ARTICLES / ARTICLES

|  |   |     |
|--|---|-----|
| A. Tawfik  | Thermodynamics in the viscous early universe  | 825 |
| M. Sharif and Saira Waheed   | Re-scaling of energy in stringy charged black hole solutions using approximate symmetries         | 833 |
| Mohammad Ebrahim Zomorodian, Alireza Sepehri, and Aliakbar Moradi Marjaneh     | The information loss for QCD matter in mini black holes at LHC                                    | 841 |
| De-Jiang Qi, Shuang-Mei Li, and Hong-Qiang Ru                                  | Quantum tunneling effect of Dirac particles in a Schwarzschild-Gödel space-time                   | 851 |
| Anil Kumar, Hasina Khatun, Nitin Kumar, Udaybir Singh, V. Vyas, and A.K. Sinha | Particle-in-cell analysis of beam-wave interaction in gyrotron cavity with tapered magnetic field | 857 |
| A.J. Patitsas  | Squeal vibrations, glass sounds, and the stick-slip effect  | 863 |
| Joseph DiRienzi and Richard J. Drachman  | Resonances in the dipositronium system: Rydberg states  | 877 |

## December / Décembre

## ARTICLES / ARTICLES

|  |   |     |
|--|---|-----|
| R. Raja, R. Sakthivel, and S. Marshal Anthoni  | Stability analysis for discrete-time stochastic neural networks with mixed time delays and impulsive effects          | 885 |
| Juanjuan Lv, Xinguo Liu, Jingjuan Liang, and Haizhu Sun  | Theoretical study of the stereo-dynamics of the $H + HeH^+(v=0, j=0) \rightarrow H_2^+ + He$ reaction                 | 899 |
| Mohammed Sahlaoui and Mammar Bouamoud  | Analytic formula for charged particle impact ionization cross-section   | 905 |
| T. Hayat, M. Nawaz, S. Asghar, and Awatif A. Hendi   | Series solution for flow of a second-grade fluid in a divergent-convergent channel                                    | 911 |
| P.E. Sheese, E.J. Llewellyn, R.L. Gattinger, A.E. Bourassa, D.A. Degenstein, N.D. Lloyd, and I.C. McDade | Temperatures in the upper mesosphere and lower thermosphere from OSIRIS observations of $O_2$ A-band emission spectra | 919 |
| Dan Huang and Yuanming Pan   | First-principles calculations of intrinsic defects in the p-type semiconductor CuAlO <sub>2</sub>                     | 927 |
| Surajit Chattopadhyay and Ujjal Debnath  | Generalized second law of thermodynamics in the presence of interacting tachyonic field and scalar (phantom) field    | 933 |
| Hossein Farajollahi and Arvin Ravanpak   | The curvaton scenario in brane cosmology: model parameters and their constraints                                      | 939 |
| John A. Weil and Brian C.S. Wong   | Energy-level crossing of atomic hydrogen spin states  | 947 |

Contents / Sommaire

C-5

Author Index for Volume 88 / Index des auteurs pour le volume 88

AI-1

Subject Classification / Classification thématique

SC-1

Contents for Volume 88 / Sommaire pour le volume 88

C-1